



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/905,698	07/10/2001	Richard R. Dickson	00-714	6169

719 7590 05/13/2005

CATERPILLAR INC.
100 N.E. ADAMS STREET
PATENT DEPT.
PEORIA, IL 616296490

EXAMINER

FAYYAZ, NASHMIYA SAQIB

ART UNIT	PAPER NUMBER
----------	--------------

2856

DATE MAILED: 05/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/905,698	Applicant(s) DICKSON ET AL.	
	Examiner Nashmiya S. Fayyaz	Art Unit 2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 February 2005.
2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1, 2 and 9-13 is/are rejected.
7) ☒ Claim(s) 3-8 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. Claims 1 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hendren et al (PG Pub# US2003/0136177). As to claim 1, Hendren et al disclose an emission sampling apparatus including a dilution tunnel 20 with inlet 17 with a sampling system 70,72,74, exhaust 11 of engine 12, flow control valve 28, second mass flow controller 36, filter 34 with a dilution air control arrangement 42/50 having a *constant* mass stream exiting via fixed flow rate pump 29 and a variable flow stream "connected with" the constant stream via *variably controlled solenoid valve 28* which provides a *variable* flow stream "prior to the inlet of the partial flow dilution tunnel", see figs 1-2. Further, it is noted that a mass flow controller, per se is not designated by Hendren et al. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to have designated the computer controlled solenoid valve 28 as a mass flow controller as it performs the function of controlling the flowrate, as in a "mass flow controller". As to claim 9, note LFE 40 at the air intake of engine 12.
2. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hendren et al (PG Pub# US2003/0136177) as applied to claims 1 and 9 above, and further in view of Kaufman- U.S. Patent # 3,699,814. As to claim 2, usage of a critical flow venturi is not illustrated. However, in a related prior art device, Kaufman discloses an exhaust gas sampler and employs a critical flow venturi 34

which is specifically designed to achieve a proper flow rate, see col. 5, lines 58 et seq. Therefore, the inclusion of such a critical flow venturi in addition to pump 29 and valve 28 would have been obvious to one of ordinary skill in the art at the time of the invention for production of a constant volume flow control device, see Kaufman col.6, lines 36-47.

3. Claims 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hendren et al in view of Kono- U.S. Patent # 4,067,300. As to claim 10, Hendren et al do not elaborate on the type of laminar flow measurement used in the LFE 40. However, in a related prior art device, Kono discloses using the pressure differential at the intake port of the engine which is generated in a laminar flow meter, see col. 4, lines 46 et seq. Therefore, usage of a pressure differential measurement with laminar flow element is considered to have been a matter design choice obvious to one of ordinary skill in the art at the time of the invention in view of the teaching by Kono as a known expediency for measuring the air intake flowrate . As to claims 11-13, usage of a selectable gain circuit to provide the "computer control" provided to the LFE is considered to have been a matter of design choice obvious to one of ordinary skill in the art at the time of the invention. Also the computer would have obviously 1 or more channel inputs or course settings.

Allowable Subject Matter

4. Claims 3-8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

5. Applicant's arguments with respect to claims 1,2 and 9-13 have been considered but are moot in view of the new ground(s) of rejection.

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will

the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nashmiya S. Fayyaz whose telephone number is 571-272-2192. The examiner can normally be reached on Mondays and Thursdays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron E. Williams can be reached on 571-272-2208. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



NFayyaz
Examiner
Art Unit 2856

Application/Control Number: 09/905,698

Page 6

Art Unit: 2856

nf

5/9/05

A handwritten signature in black ink, appearing to read "Hezron S. Williams", followed by a long horizontal line extending to the right.

HEZRON WILLIAMS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800